UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

INTERIM CONSERVATION PRACTICE STANDARD

INCINERATOR
(Ea.)

Code 769

DEFINITION

An incinerator used to dispose of mortalities from poultry, swine, or other small animal operations.

PURPOSE

The purpose of this practice is to provide a suitable disposal method of small animals to prevent pollution and improve environmental quality.

This standard covers the planning, sizing, and installation of a manufactured incinerator for the disposal of small animals.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where current disposal practices of small animals are unsatisfactory and where there is a need to improve sanitation, reduce pollution, or enhance the visual resource.

All federal, state, and local laws, rules, and regulations governing waste management, pollution abatement, and health and safety shall be strictly adhered to. The owner or operator shall be responsible for securing all required permits, approvals, and registration and for the operation of the unit in accordance with appropriate laws, rules, and regulations. Incinerators installed for dead animal disposal must be registered with the Alabama Department of Environmental Management (ADEM) prior to construction and operation. (See Attachment 1).

DESIGN CRITERIA

Type 4 incinerators on ADEM's approved list may be used for disposal of dead animals. (See Technical Guide ENG REF No. 26-14).

The required minimum incinerator capacity will be determined using the following table or formula methods:

Type Animal	Daily Loss Factor (lb/day/animal)
Chickens:	
Broiler (4.2 lbs)	0.0050
Laying Hens (4.5 lbs)	0.0014
Breeding Hens (7.5 lbs)	0.0019
Breeder, Male (11 lbs)	0.0082
Turkeys:	
Hen (14 lbs)	0.0081
Tom, Light (24 lbs)	0.0193
Tom, Feather (30 lbs) Production	0.0286
Swine: Suckling Pigs (5 lbs)	0.04 (per sow)

If detailed records are available, the following formula can be used to determine the Daily Loss Factor for a specific operation:

$$\frac{MW \times AM}{L} = \text{Daily Loss Factor}$$

Where:
MW = Mature weight of the animal (i.e. - 4.2 lbs)
AM = Average mortality for the life of the animals, as a decimal (i.e. - 0.05)
L = Life of the animals in days (i.e. - 42 Days)

Example 1 (Using Formula):

Given: 36,000 roasters
6.5 lb market weight
8% average mortality
65 day flock life

Daily Loss Factor = $\frac{6.5 \times 0.08}{65}$ = 0.008 lb/day/bird

Average daily weight of dead birds:
36,000 x 0.008 = 288 lbs/day

Incinerator capacity:
Minimum 288 lbs per loading capacity

Example 2 (Using Table Value):

Size of swine unit: 500 sows (total on farm)

Average daily weight of dead suckling pigs:
500 x 0.04 = 20 lbs/day

Incinerator capacity:
Minimum 20 lbs per loading capacity

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The recommended incinerator size will be the smallest size available that will handle the required minimum capacity. More than one incinerator may be required for larger operations. Heavy mortalities at the end of a cycle may require loading the incinerator more than once a day.

From a list of incinerators approved by ADEM for Type 4 incineration, the grower may select the incinerator incinerators of his choice. The following is taken from a specification sheet for one incinerator approved by ADEM:

Overall weight: 2250 lbs
Height: 7 ft. 10 in.
Width: 3 ft.
Length: 4 ft.
Metal: 10 gage
3 in. lining
3000° refractory
Charge Door: 17 in. lining with 2 in. refractory
Stack: 4 ft. tall, 5/8 in. wall thickness
Spark Screen: 6 in. stainless steel
Ash Door: 4 ft. lining with 3 in. refractory
Crates: ½ ft. x 2 in. x 20 in.
Burner: 800,000 BTU incinimite with cover
Timer: 60 min. intermatic clock

Any incineration disposal of dead animals will have a plan for collecting and disposing of the ash material remaining after incineration. The plan should include an ash collection box or bucket and disposal of the ash on the land or through a community trash disposal system. If land application is used, allow one-half acre for each 60,000 broilers; 30,000 layers; and 100 sow/hog facility.

ADEM requires that the incinerator or modification to the incinerator to be registered with them (See ADEM Form 52 – Attachment 1).

Electrical hook-up to be installed as per standard industry practices but in no case less than the minimum requirements of the most recent edition of the National Electrical Code. Installation must be certified by a qualified licensed electrician. All electrical wiring shall be in conduit at the incinerator. Wherever installation could be classified as a hazardous location, specific conformance to Article 500 of the National Electrical Code will be met.

Gas hook-up must be certified in writing by a qualified state licensed Liquified Petroleum Contractor to meet National Fire Protection Association (NFPA) Code 54 & 58; all other state, national, and local codes; and in accordance with the manufacturer's recommendations. Other fuel sources must meet all state and local codes for transmission of flammable or volatile fuels. For diesel-fired incinerators, a Spill Prevention, Control, and Countermeasures (SPCC) Plan shall be prepared by a registered professional engineer for any individual fuel storage tank in excess of 660 gallons, or cumulative storage capacity of multiple tanks in excess of 1,320 gallons.

Location of Incinerators

Locate the incinerator according to the following requirements:

- at least 50 feet from any surface water course
- at least 100 feet from any well or water source
- at least 20 feet from any building to prevent spontaneous combustion
- on a concrete slab.

CONSIDERATIONS

Consideration should be given to providing roof protection for the incinerator to extend the life of the unit. Metal roof purlins and covering should be used to prevent spontaneous combustion from the stack.

Consideration should be given to the use of an afterburner to further reduce odors and fumes if the incinerator is to be installed in a sensitive area.

OPERATIONS AND MAINTENANCE

Incinerators shall be operated in such a manner as is necessary to prevent the emission of objectionable odors.

REFERENCES

ADEM Form 52, 4/00 – Attachment 1
NRCS Technical Guide ENG REF No. 26-14
National Electric Code
National Fire Protection Association Code

CONSTRUCTION SPECIFICATIONS

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SCOPE

This item shall consist of the clearing, excavation, backfill, concrete, reinforcing steel, and other appurtenances required for the installation of an incinerator and the disposal of all cleared and excavated materials. Construction shall be carried out in such a manner that erosion, water, air, and noise pollution will be minimized and held within legal limits as established by State regulations.

CLEARING AND GRUBBING

All trees, brush, and stumps shall be removed from the site and spoil areas before excavation is performed. All material cleared from the area shall be disposed of by burning or burying on-site or hauling to an appropriate landfill. All burning shall conform to regulations and laws of Alabama.

EXCAVATION

Soils containing excessive organic material will be removed from the foundation area. The completed excavation and placement of spoil material shall conform as nearly to lines, dimensions, grades, and slopes shown on the plans or staked on the site as skillful operation of the excavating equipment will permit.

CONCRETE

This work shall consist of furnishing, forming, placing, finishing, and curing Portland cement concrete. The concrete mixture shall be no less than a five (5) bag per yard mix. The water content shall not exceed 6 gallons per bag of cement. The concrete will be thoroughly rodded or vibrated and spaded to remove air voids and produce dense, watertight concrete. Concrete shall contain a standard known brand of Portland cement with washed sand and gravel. Clean water shall be used in the mix.

Suggested ratio of aggregates in mix:

94 lbs. cement (1 bag), 6 gallons water, 170 lbs. clean dry sand, 315 lbs. dry gravel.

Smaller batches: 1 part cement, 2 parts sand, and 3 parts gravel; add water at the rate of 1 gallon per 16 lbs of cement.

INSTALLATION OF INCINERATOR

Incinerators will be installed according to all national, state, and local laws, regulations, and codes, and the manufacturer's instructions. If shall be installed on a concrete pad. It may be protected by a house structure or by a roof structure with metal purlins and roofing material.

VEGETATION

Vegetation shall be applied to all disturbed areas as critical area planting and will include liming, fertilizing, seedbed preparation, seeding, and mulching. If farm animals will have access to the area, the area around the incinerator will be fenced, if appropriate.

APPROVAL

A complete copy of the design will be filed by the district conservationist.

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April 2000